

REMARKS/ARGUMENTS

In this amendment, claim 6 is amended. No claims are canceled or added. Thus, claims 1-30 and 32-36 remain pending.

Rejection under 35 U.S.C. 103(a), Chatterjee, Moore, and Humlicek

Claims 1, 2, and 4, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 2004/0024962) in view of Moore (U.S. Patent Application Publication No. 2004/0003135) in further view of Humlicek et al. (U.S. Patent No. 5,822,782).

Claim 1 is allowable over the cited references, either alone or in combination, as those references fail to teach or suggest all the elements of claim 1. For example, claim 1 recites

*a RAID class driver including
a first physical device object representing a RAID system
comprised of a plurality of disks,
a plurality of functional device objects, each associated with one of
the disks and adapted to interface with a second physical device object
representing that disk, wherein each second physical device object provides a
RAID-specific device identification, wherein the first physical device object is
attached with each functional device object, and wherein each functional device
object is associated with a different disk.*

At page 3, the Office Action asserts that controller 1 PDO in PCI driver 510 is the first physical device object. *See Chatterjee*, FIG. 5. Controller 1 PDO accesses logical drives LD2 and LD3. *Id.*, FIG. 5 and ¶ 40. A logical drive is an array of physical drives that are seen as a single drive. *Id.*, ¶ 36. Thus, each logic drive may be a RAID system made up of a plurality of disks when controller 1 PDO is a RAID controller. *Id.*, FIG. 4 and ¶ 42.

At page 3, the Office Action also asserts that the filter objects of FIG. 5 (team filter or disk filter) are the functional device objects of claim 1. However, as each filter object accesses a different logical drive (an array of disks), each filter object is associated with multiple disks, and not "*associated with one of the disks ... wherein each functional device object is associated with a different disk*" of the RAID system. Accordingly, Chatterjee does not teach or suggest this limitation, even if the filter objects were the functional objects of Moore.

Additionally, in Moore, the functional device objects 510a and 510b are for different devices, each with a separate driver. *See Moore*, FIG.2 and ¶ 6, 55. Thus, the device objects 510 are not part of a RAID system. Accordingly, PDO 535 cannot represent a "*RAID system comprising a plurality of disks*" where "*each functional device object is associated with a different disk*" of the RAID system, as recited in claim 1. Note that the cited teaching of Humlicek does not make up for the deficiencies of Chatterjee and Moore.

For at least these reasons, claim 1 is allowable over the cited references. As claim 1 is allowable, dependent claims 2-14 and 36 are also allowable for at least the same rationale.

Claim 3

Claims 3, 28, 29, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee, Moore, and Humlicek in further view of Merkey (U.S. Patent Application Publication No. 2003/0070043).

In addition to being allowable for the same rationale as claim 1, claim 3 is allowable for additional reasons. For example, claim 3 recites "*wherein the first physical device object representing the RAID system is adapted to provide a standard disk device identification to an operating system.*"

For claim 1, the Office Action asserts that the second physical device objects are Moore's PDO 515 and/or Chatterjee's disk or team PDOs of FIGS. 5 and 6, which would provide a RAID-specific ID when modified by a teaching of Humlicek. *See Office Action*, page 4. For claim 3, the Office Action asserts that the first physical device object is the controller 1 PDO of Chatterjee, which would provide a standard device ID to an operating system when modified by Mercy.

However, the asserted second physical device objects are between the asserted first physical device object and the operating system. *See Chatterjee* FIG. 5 and *Moore* FIG. 5. Thus, in order for the controller 1 PDO to send a standard device ID to the operating system, the asserted second physical device objects would also have to send a standard device ID. This provides a contradiction as the second physical device objects are to send a RAID-specific ID. Accordingly, the combination does not teach or suggest "*wherein each second physical device*

object provides a RAID-specific device identification," as recited in claim 3. For at least this additional reason, claim 3 is allowable over the cited references.

Claims 28-35

Applicants submit that independent claim 28 should be allowable for at least a same rationale as claim 1 and 3. For example, claim 28 recites "*binding a respective RAID-specific functional interface to each disk having a RAID-specific device identification; binding all of the RAID-specific functional interfaces to a same disk object representing the entire RAID system and providing the operating system with a standard disk device identification via the disk object.*"

As claim 28 is allowable, dependent claims 29-35 are also allowable for at least the same rationale.

Rejections under 35 U.S.C. 103(a), Chatterjee, Moore, and Humlicek in view of ...

Claims 5- 10 and 13 are rejected under 35 U.S.C. 103(a) in further view of Lu (U.S. Patent Application Publication No. 2004/0073747). Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee, Moore, Humlicek, and Lu in further view of Frank et al. (U.S. Patent Application Publication No. 2004/0160975). Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee, Moore, and Humlicek in further view of Brantley Jr. et al. (U.S. Patent No. 5,163,149). Claim 30 is rejected under 35 U.S.C. 103(a) in further view of Merkey (U.S. Patent Application Publication No. 2003/0070043) in further view of Frank. Claims 36 is rejected under 35 U.S.C. 103(a) in further view of Rezual Islam et al. (U.S. Patent No. 6,282,670).

The cited teachings of Lu, Frank, Brantley Jr., Merkey, and Islam either alone or in combination, do not make up for the deficiencies in the cited references with respect to these claims.

Rejection under 35 U.S.C. 103(a), Chatterjee in view of Humlicek

Claims 15, 22, and 23, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee in view of Humlicek et al. (U.S. Patent No. 5,822,782).

Claim 15 is allowable over the cited references, either alone or in combination, as those references fail to teach or suggest all the elements of claim 15. For example, claim 15 recites:

a RAID controller adapted to induce an operating system to load, into a processing unit on another integrated circuit, a RAID class driver having a physical device object representing a RAID system comprised of a plurality of disks; and

a first disk controller adapted to interface with at least a portion of the plurality of disks and further adapted to induce the operating system to load a disk controller driver, wherein the disk controller driver is adapted to provide RAID-specific device identifications for the portion of the plurality of disks.

At page 11, the Office Action asserts that the controller 220 induces the loading of controller 1 PDO of PCI.SYS, which is asserted to be a driver representing a RAID system. *See Chatterjee*, FIGs. 2 and 6. Also, at page 11, the Office Action also asserts that controller 2 PDO is the first disk controller that interfaces with at least a portion of the plurality of disks.

For FIG. 6, the controller 0 PDO has failed and thus it does not interface with any disks. *Id.*, ¶ 46.

In FIG. 5, controller 0 PDO interfaces with logical volumes LD0 and LD1. Thus, the controller 0 PDO interfaces with different logical volumes as controller 1 PDO, which interfaces with logical volumes LD2 and LD3. As stated above, each logical drive LD1-4 is a different RAID system. *Id.*, ¶ 36. Thus, controller 0 does not interface with any of the disk drives of RAID systems LD2 and LD3, which controller 1 PDO interfaces. Note that the cited teaching of Humlicek does not make up for the deficiencies of Chatterjee and Moore.

Accordingly, Chatterjee and Humlicek do not teach or suggest "*a first disk controller adapted to interface with at least a portion of the plurality of disks*" of the RAID system represented by the physical device object of the RAID class driver, as recited in claim 15.

Rejections under 35 U.S.C. § 103, Chatterjee and Humlicek in view of ...

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee and Humlicek in further view of Merkey. Claims 17-19 and 21 are rejected under 35 U.S.C. 103(a) in further view of Lu. Claim 20 is rejected under 35 U.S.C. 103(a) in further view of Lu in further view of Gajjar (U.S. Patent No. 5,787,463). Claims 24-27 are rejected under 35 U.S.C. 103(a) in further view of Frank et al. Claim 35 is rejected under 35 U.S.C. 103(a) in further view of Merkey in further view of Rezual Islam et al. (U.S. Patent No. 6,282,670).

The cited teachings of Lu, Frank, Gajjar, Merkey, and Islam either alone or in combination, do not make up for the deficiencies in the cited references with respect to these claims.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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